14 Digital Divide in Post-Primary Schools

Ann Marcus-Quinn[1] and Oliver McGarr[2]

Abstract

This research study developed curricular specific open educational resources (OERs) for the teaching of poetry at Junior Certificate level in Irish post-primary schools. It aimed to capture the collaborative design and development process used in the development of the digital resources and describe and evaluate the implementation of the resources by teachers in different educational contexts. The research employed a case study approach as it was seen as the most suitable methodological approach to capture the richness of the design and implementation of the resource, which was developed in collaboration with six practicing teachers and implemented in three different schools with various classroom settings. Through the use of semi-structured teachers interviews, student questionnaires and classroom observations the research methodology employed aimed to capture the richness of the experience from the participants' perspective. The study found that the resource was adopted in very different ways across the participating schools. The study raises questions about the use of digital resources in schools and the possible emergence of a second digital divide, which is not defined by access to technology as was previously the case, but defined by the use of the technology and the extent to which it is used in a constructive and meaningful way to enhance the students learning experience.

Keywords: open educational resources, poetry, second digital divide.

1. National Digital Learning Resources Service, University of Limerick, Limerick, Ireland; ann.marcus.quinn@ul.ie

2. Department of Education and Professional Studies, University of Limerick, Limerick, Ireland; oliver.mcgarr@ul.ie

How to cite this chapter: Marcus-Quinn, A., & McGarr, O. (2013). Digital Divide in Post-Primary Schools. In C. Fowley, C. English, & S. Thouësny (Eds.), *Internet Research, Theory, and Practice: Perspectives from Ireland* (pp. 277-303). Dublin: © Research-publishing.net.

1. Introduction

> "Today's explosion in media technologies has brought new literacies into being […] even if our schools have been one of the last places to recognise this" (Goodman, 2003, p. 1).

While the degree to which information and communication technologies (ICT) will impact on education is unknown, the development of ICT is having a profound impact on modern life. In a relatively short period of time the rapid development of ICT has radically changed our methods of communicating and accessing information. This diffusion of technology into all aspects of society has seen the emergence of what is commonly referred to as the information age, and while it is difficult to predict the long-term impact of this rapidly evolving technology, it is evident that the emergence of the information society brings with it the need for new skills and competencies not previously considered a priority in state schooling. Key skills in the information age are associated with the access, manipulation and application of information. Therefore the expansion of digital technologies has placed demands on citizens to become competent effective users of new technologies.

> "Just as the industrial societies set themselves the aim of ensuring that all citizens were properly versed in the three Rs[1], the emergence of the knowledge-based society implies that every citizen must be 'digitally literate' and basic skills in order to be on a better footing in terms of equal opportunities in a world in which digital functions are proliferating" (European Commission, 2000, p. 4).

The importance of this type of literacy has raised the issue of the digital divide – a concern that not all students will have appropriate access to this technology and therefore will be disadvantaged. It is now seen as critical that schools address these skills and ensure that no student is left behind. As Davis et al. (1997) claim, "one of the most important challenges to an educational system is to empower

1. Reading, 'riting (writing), and 'rithmetic (arithmetic).

the young with the intellectual tools of the culture" (p. 16). The emergence of a possible 'digital divide' sparked governments to address the problem through school-based intervention which led to many high profile initiatives launched towards the end of the 20th century. Ireland was no exception and in 1998 began investing in ICT infrastructure for schools. However, the extent to which this has addressed the digital divide is unknown. Mulkeen (2003) importantly highlights that information literacy does not simply entail access to computers but that "the real digital divide may not be between those who have used a computer and those who have not, but between those with different types of ICT experience" (p. 17). Defining the digital divide is therefore problematic and goes beyond distinguishing between those with access to technology and those who don't. Hawkins and Oblinger (2006) discuss the notion of the 'second-level' digital divide and this is where the hidden and very real divide lies. This digital divide is caused by several issues: age of the machine, connectivity, online skills, independence and freedom of access, and computer-use support. The definition of digital divide must therefore include all of these other issues. It can also be argued that this second-level digital divide also encompasses the type of use of the technology as indicated by Mulkeen (2003), where one school advocates some use of the available technologies but in a very superficial manner, whereas another school's ICT policy champions the meaningful and constructive integration of technology into their teaching and learning. The challenge for schools has therefore shifted. Access to the technology no longer appears to be a significant issue. The main challenge for the future is to develop meaningful activities and resources that foster important digital literacies amongst students. Open educational resources can play an important role in addressing this as they can be tailored to meet the needs of specific students and curricula (UNESCO, 2012).

This chapter reports on an ICT initiative in a number of Irish post-primary schools and examines how a teacher-designed multimedia resource for the teaching of English poetry was used by a number of teachers. The project raises a number of important questions relating to national ICT policy and the future use of ICT in schools. Before outlining the project, the following sections will set the study in context by outlining the background to the study.

1.1. ICT in Irish post-primary schools: setting the context

In order to understand the context of the study it is important to highlight the key aspects that have shaped how ICT is used and perceived in schools and what the prevailing pedagogical practices are, as both of these issues significantly shape and determine the successful integration of any ICT initiative across the curriculum.

Computer use in Ireland has had a long history. However the rationale for its use in schools has changed over the decades. Early justifications for its use were motivated by an early group of pioneers, coming mainly from a mathematics background and they saw the computer as a machine to be studied (McGarr, 2009). This influenced early computer usage where students learned about the operation of the computer and developed programming knowledge. However, throughout the 1980s computer use in schools appeared to organically develop into a separate subject that focused on basic computer skills such as the use of word processing, spreadsheets and other standard applications. Therefore rather than moving towards a specialist area of study, it instead emerged largely as a standalone subject (Drury, 1995; McKenna, Brady, Bates, Brick, & Drury, 1993).

The launch of the Schools IT2000 initiative, the first large scale attempt to integrate ICT across the curriculum in 1998, also had a strong focus on the need to equip all students with basic ICT skills. This was particularly important in a system that did not have a compulsory ICT experience for students at post-primary level. Therefore, when one looks at the past three decades of ICT usage in schools, it is evident that the rationale for use is strongly based on what could be described as a social rationale, that is, a focus on ensuring all students have a basic level of ICT competence and literacy (DES, 2012). Ultimately, it remains in general a subject to be taught. This is done mainly through the provision of skills courses aimed at developing competence in standard software applications. There are some pockets of ICT integration but this appears to be quite limited (DES, 2008a) and the predominant use of ICT across the curriculum appears to be as a presentation aid for the teacher where presentation software such as *PowerPoint* is used.

A second aspect of post-primary education pertinent to this study is the nature of teaching and learning in most Irish classrooms. Classroom teaching practices in Ireland have long been criticised for their teacher-centred nature and the didactic nature of the learning experience. As far back as 1991 the organisation for economic cooperation and development (OECD) found that teaching and curriculum were largely determined by examinations requirement and that there was a strong emphasis on "a didactic approach" (OECD, 1991, p. 55). Later studies in the same decade by Callan (1997) and Mackey (1998) also reported a largely teacher centred approach to learning. More recent research by Lyons, Lynch, Close, Sheerin, and Boland (2003) into mathematics classrooms revealed similar results reporting that "[c]lasses were strongly teacher directed, with teachers generally using a didactic approach to the presentation of material [...with a lack of] student participation in the organisation of their own learning" (p. 147).

The recent teaching and learning international study (TALIS) report on Ireland, published in 2009, supports these earlier findings reporting that "[t]eachers in Ireland were somewhat less supportive of constructivist beliefs, and somewhat more supportive of direct transmission beliefs than their counterparts in all five comparison countries" (Shiel, Perkins, & Gilleece, 2009, p. 6). Therefore, the multimedia OER developed, with its emphasis on student participation and a non-linear approach to learning, was perhaps not in congruence with either the dominant pedagogical approaches employed in Irish classrooms or with how ICT is generally used as a presentation aid to support such teacher-centred lessons. This research was therefore particularly interested in how it would be adopted by the participating teachers.

The primary aim of the Junior Certificate English curriculum is to build on what has been taught at primary level. The Junior Certificate curriculum for English is varied and expects that all students will develop their language and literacy skills. There is no set teaching methodology for Junior Certificate English. Instead the Department of Education and Science (DES, 2012) provides teachers with a set of guidelines from which they can choose the best approach to suit their students' needs. However, the Junior Certificate English

curriculum requires that students sitting both the higher and ordinary level examination be examined on the following:

- Reading;
- Writing;
- Functional writing;
- Media studies;
- Drama (unseen and studied);
- Poetry;
- Fiction.

For the purposes of this research, subject inspection reports were consulted. Subject inspection reports present findings based on observations of practice in schools and classrooms. The purpose of these reports is to make a positive contribution to the teaching and learning of English, and they are therefore intended to be of particular relevance to teachers of English and to school managements. The aims are fourfold:

- To inform and encourage professional dialogue;
- To assist schools and subject departments in the process of self-review;
- To suggest areas for improvement;
- To share exemplars of good practice.

These reports are, according to the DES, a measure of what is actually taking place in schools as they are evidence-based and are informed by a variety of activities.

1.2. Problematic areas

The subject inspection reports call attention to a number of problems associated with the teaching of English at post-primary level, which include the lack of exposure of some students to a wide variety of literature, including poetry (DES, 2006, p. 24). The lack of audio visual material has also been identified as a problem. Where material is available it should be used as part of the lesson. Where inspectors observed such material being used they commented that it was of great benefit to students (DES, 2008b, p. 30).

The inspectors also identified the teaching of the basic mechanics of language as problematic in some schools and suggested that ICT be used to combat this:

> "The second concern arose where language skills, in particular grammar and syntax, were treated as a separate issue in textbooks. In practice this led to the teaching of language skills in isolation, whereas they should be grounded in the texts the students are reading. The practice of taking English classes to the computer room was observed in a few schools but is much less widespread than is desirable" (DES, 2008b, p. 33).

2. The project

2.1. Courseware development

As part of the present study to explore how multimedia and digital learning objects can be used to foster critical thinking, a multimedia rich resource for teaching poetry at post-primary level was developed. The poetry course was selected as it provided the opportunity to explore broad themes within the syllabus. It also enabled the development of research skills, critical thinking and analytical skills, which are required in dealing with ambiguous meaning and the multiple perspectives and interpretations of material. The learning object comprised seven individual lessons: six poems taken from the Junior Certificate syllabus and one lesson focusing on poetry terms. This digital resource was developed in collaboration with English teachers at post-primary level. Teachers in the greater catchment area of the University of Limerick were invited to participate in the research study. Eight teachers expressed an interest in the study and contributed to the development of the courseware. A number of the participating teachers had begun to explore alternative pedagogical approaches to the teaching of poetry but none had explored the potential of ICT. The teachers that participated in the needs analysis for this courseware described how they normally approached a poem with their class. Based on this, we created a wish list for the multimedia lesson. Biographical information on the poet, plenty of images, a background for the social context of the poem were all deemed to be appropriate content. Having a specific objective with measurable outcomes ensures that courseware

design was not compromised by the availability of extra features. Deciding on specific learning objectives guarded against the inclusion of bells and whistles for their own sake.

The lack of curriculum relevant ICT materials is a common concern raised by teachers considering using ICT in their lessons. This issue is exacerbated in Ireland due to its relatively small population. This often makes it unfeasible to commercially produce curricular relevant learning material of a high standard. Within this context, tailor-made curricular resources developed in collaboration with practicing teachers using 'easy to use' authoring tools may sound like an impossible task. However, as this small scale research has highlighted, the availability of easy to use authoring tools that produce courseware of a professional quality has enormous potential for innovation in Irish schools. The potential for collaboration and sharing of these resources makes the development of these small scale resources attractive if seen as part of a larger community of courseware developers. There is a growing online community of centres and institutions with material freely available for use both in the classroom and at home. For instance, *BBC Schools* has commissioned a number of digital learning objects that present traditional material in a manner that appeals to a digital generation. In Ireland a number of online educational courseware portals are facilitating the sharing of this technology. Information is presented in attractive visual layout, comprising short pieces of text, often accompanied by spoken readings, thereby removing the often tedious task of decoding written texts. Sharing resources produced in this manner can overcome the problems of bandwidth which often inhibits use in schools.

It is also worth noting that many departments within third level institutions are now developing digital learning objects which they can then upload to a central repository where they may be shared with colleagues at other institutions and may be reused or redeveloped (Marcus-Quinn & Geraghty, 2009; Pegler, 2012; Wiley, 2010; Yuen, Chow, Cheung, Li, & Tsang, 2012). Some international secondary schools have also recognised the potential of collaboratively developed material and have developed similar repositories to share learning resources among staff

and students (Driesche, 2011). Such digital resources may also be incorporated into teaching materials distributed to distance learners (Wilson, 2008). Irish post-primary schools should consider similar strategies.

This study was conducted over one academic year. The pilot group participated from October to December. There were three post-primary schools involved. The schools varied in size and type:

- School A is a co-educational school with a population of some 600 students. Improvement was predominantly seen in terms of recent infrastructural developments. As a result of a fire in 2006 the PC lab had to be refurbished. Consequently the PC lab was brand new at the time of this study. Computers are being used in technical/vocational subjects and the integration of ICT as a teaching and learning tool in other subject areas is at an early stage of development;

- School B is a girls' secondary school with a population of 400 students. While the school did not have a history of ICT use, a substantial investment from the *Schools IT2000* initiative has enabled the school to start some developments in this area;

- School C has some 1047 students. The school has used computers since its opening in 2000. The integration of ICT in different subject areas is now being attempted and is more advanced in some areas (Technical Graphics) than others (Humanities).

The teachers involved in this research did not have a history of ICT use. The schools themselves all have ICT facilities as a result of recent state investment in ICT.

2.2. Participants

Overall, there were 154 students and 13 teachers involved in this study. Table 1 and Table 2 show the breakdown of students and teachers, respectively.

Table 1. Breakdown of students

Usability group*	1st and 2nd year students Pilot group 2 classes from school A	School A 1st year 1 class	School B 1st year 1 class	School C 2 x 2nd year Learner support groups
24	58	26	30	16

*The Usability group was crucial to identify any issues with the digital resources.

Table 2. Breakdown of teachers

Teachers consulted for development of resources	1st and 2nd year students Pilot group 2 classes from school A	School A 1st year 1 class	School B 1st year 1 class	School C 2 x 2nd year Learner support groups
8	2	1	1	1

3. Implementation in the three schools

3.1. Data collection sources and procedures

This study adopted a case study methodology, drawing evidence from as many sources as possible. Data collection tools included interviews with teachers (pre-use, during use and post-use), student focus group interviews and observation, online questionnaires, and opportunistic elements as they arose. This study was conducted in compliance with the institutional ethical policy. Consent was obtained from the participants following a detailed description of the research project and its aims. Confidentiality and anonymity were guaranteed to all participants where requested.

In this section of the chapter, the methods that were used in order to analyse each data source are presented. All of the data sources were analysed according to specific methods in order to best answer the questions that guided the data

collection and analysis for this study in an effort to answer the main research question: How do students use the learning object within the context of the traditional classroom?

3.2. Interviews with teachers

After reading the available reports pertaining to ICT use in Irish schools, it was necessary to speak to teachers to get an insight into the realities of incorporating ICT into the classroom. Interviews with the teachers contributed directly to the content, design and development of the learning object. Notes from these interviews were recorded with the aid of a Digipad, a device which captures handwritten notes and illustrations using an ink filled rechargeable digital pen and folder on normal paper. The notes can then be uploaded via USB cable to PC and converted into a recognised typed text typeface.

3.3. Student focus group interviews and observation

For the purposes of this study it was decided to speak with the students in a focus group setting before they used the learning object. In order to gain a deeper understanding of the practicalities using the technology from a student perspective, student groups were invited to share their thoughts and opinions about the learning object. Students were interviewed in focus groups, as opposed to individually, so that group members could contribute to each other's ideas and responses and therefore more useful information could be gathered (Morgan, 1997). Some of the questions in the focus group interview protocol were replicated in the online student questionnaires. Observation was another key apparatus of the case study toolkit "to see things as those involved see things" (Denscombe, 1998, p. 69).

3.4. Online student questionnaires

This method of data collection was practical as it is cost effective, anonymous, can reach respondents in distant locations and is mainly written for specific

purposes, based on a set of standardised questions (Dörnyei, 2003). Online surveys were administered using *SurveyMonkey*[1] in order to measure student attitudes to English and specifically poetry as a subject, use of learning objects to aid schoolwork, and computer use outside the classroom including games like the *SIMs*. To provide additional background information on type of use, students were also asked about their use of other Web 2.0 technology, such as social networking websites. While most filled out the questionnaire individually in one class, we observed a number of students reading the computer screen beside them, copying each other's answers. This meant that their questionnaires had to be given out in hardcopy in subsequent weeks. The students were more protective of their handwritten work and did not allow other students to copy from their individual work.

3.5. Opportunistic elements of the case study

The case study researcher is likely to be sensitive to opportunistic as well as planned data collection (Hartley, 2004; Stake, 1995). By remaining flexible and allowing for some changes in direction, new ideas could develop. Therefore when the opportunity presented itself to incorporate some usage of the university's virtual learning environment (VLE) into the study, the project embraced it rather than saying it was outside of the original project scope.

As part of the research study, a project site within Sakai (the university's VLE) was set up for the group of 30 students at School B to join. As the school had not issued each student with an individual email/login, the teacher set up one email address for the entire class to use. The teacher did not want students using their personal email addresses for privacy reasons. The students were told that for this reason, their comments would have a level of anonymity that would not usually be the case with a VLE. Students were told that they could type their name at the end of their comments if they wished to reveal their identity. The majority signed their name and took ownership of their contributions. The

1. Retrieved from http://www.surveymonkey.com/

student who was deemed to have contributed the most to the online discussion received an *iPod* as a prize. The event logs from the project site 'Poetry Corner' were analysed and all of the log activity was included in the study and copied to a spreadsheet for analysis.

In one of the schools, students were given the option to design their own multimedia poem. This was completely voluntary and was done in the students' own time outside of the classroom. A total of 5 out of 30 emailed a *PowerPoint* presentation on a poem of their choice to the researcher. While this is a very small number this work was completely voluntary and of a high quality. They also contacted the researcher directly to share that they had really enjoyed the experience of using the software in the classroom.

3.6. Post use interviews with teachers

The focus of these interviews was primarily on the student use and impact of the learning object developed. The feedback from these interviews was largely positive; only one teacher expressed concern about moving away from the more traditional poetry lesson.

4. Data analysis

Once the data had been collected, a software package, *Weft*, was used for analysis as it was deemed most appropriate to this research project. *Weft Qualitative Data Analysis* is a graphical user interface package for the analysis of unstructured textual data such as interviews and notes from observations. *Weft* is a freeware tool and in the spirit of freeware, is available for use at no cost to the researcher. It is possible to import documents directly from a word processing package and code these documents easily on screen. *Weft* was suitable for this project as there was no need to work with rich text (italicised, bold, etc), the project was not working with audio or multilingual documents nor was there any need for paid support. This tool crucially facilitated easy data management and retrieval.

5. Findings

5.1. School A

In school A, three teachers used the resource. Use of the software varied across the cooperating teachers. The initial use of the software by two of the teachers appeared to mirror the educational practices that have been commonly reported in relation to the Irish classrooms (Callan, 1997; Lyons et al., 2003; Mackey, 1998; OECD, 1991; Shiel et al., 2009). The software was used in one of the two computer rooms in the school. The computers were arranged on a bench that ran along the circumference of the room in a U shape. The teacher's computer, at the top of the room, was projected to a large white screen. This arrangement led to the students working independently on individual workstations. In these lessons, the teacher tended to control the students' use of the software and no student exploration or independent work was allowed. The teachers directed the students to items on the screen and asked individuals to read from the screen aloud. This pattern was repeated for much of the observed lessons. For example, the teacher would navigate to a new screen on the projected screen and request a student to read its content, normally from the student's own computer screen, before discussing the extract, providing an explanation to the class and pointing out aspects of note relevant to the syllabus aims.

Within this controlled approach, the students were not allowed to navigate through the resources without direction. Several messages and reminders reinforcing this approach were given throughout the lesson, with the students being reminded that they were not to progress independently with the software. High levels of surveillance of the students also took place to monitor this compliance; this was evident through the continuous circulation around the classroom by the teacher. Speaking about her approach to the use of the software after one of these observed sessions, the teacher explained;

> **Teacher from School A:** I get them to talk through the poem. We read it together and then we go through the theme and get them to discuss it as a class. I think that I could really use this.

In many respects the software was being used as an electronic textbook/ workbook. Within these lessons, where there were up to 30 students, the researcher noted that the levels of student interest varied significantly. Some students appeared highly engaged and motivated by the novel visit to the computer room and paid full attention to the instructions given to them by their teacher. However, others showed low levels of interest, reflected in the high levels of off-task activities. For example, it was observed during many sessions that students opened a second internet browser to view other websites such as sports websites. When such 'off task' activities were identified by the teacher the student was reprimanded with a verbal warning. Following these exchanges, this off task behaviour switched to less identifiable defiance of the teacher's orders. This behaviour included playing with the technology, such as manipulating the size of graphics from the software or copying them into a word processing document.

Despite the various levels of engagement, an analysis of the completed student work revealed that all students completed the exercises and tasks set by the teacher, albeit to varying degrees. For example, when the completed student responses were analysed, the responses to the questions set on each student worksheet varied to a large extent. Some provided detailed responses to the questions posed while others filled in 'nonsense' words or copied the answers from other students. As a result of teacher intervention, when the teacher explained how the tasks were related to their end-of-term examination, this level of engagement did improve as the project progressed. Although the level of engagement was mixed, the teacher did indicate in one of the final interviews that student interest and engagement had increased.

> **Teacher from School A:** They are all poems that we would cover anyway. They liked using this. They liked finding the extras and reading more about the poet. We will probably use this for the TL21 project.

The third teacher to use the software in this school appeared to take a very different approach, enabling the students to explore the resources and work independently in small groups to complete a project. These lessons took place

on a Friday afternoon when the majority of the students in the class were participating in school sports events and therefore the remaining students were there by choice. As a result, there appeared to be very high levels of student interest and engagement, reflected in much lower levels of 'off task' behaviour and viewing of other websites. The students took notes in their copybooks and talked to each other about the information presented to them.

During informal discussions with the teacher after one of the observed sessions, it emerged that the teacher was using the time spent in the computer room as an opportunity to catch up with administrative work, which explains the lower levels of surveillance and monitoring of student work. It was also evident that the students were highly motivated to complete the task. In many occasions there was almost complete silence amongst the group as they worked on the task and, unlike the other groups, all student tasks were completed to a high level. To a certain extent, despite the presence of the teacher, the lessons observed with this group had the appearance of students working independently on the tasks in the absence of a teacher.

> **Teacher from School A:** It's great that they can work away on it themselves… It gives me a chance to fill out the forms… they're very motivated anyway especially if they know that it's coming up on the exam.

5.2. School B

The second school, school B, was a very large urban community college and the software was used as part of two small learning support groups (8 students). Each group varied in age from 12 to 15 years and were a mix of both native and non-native English speakers that had been identified as requiring remedial support for language development. Within this more intimate classroom setting, lessons tended to be more participatory and discussion based. The teacher did not use a textbook with the group and instead chose to select material and resources that best suited the needs of the group. In explaining the pedagogical approach adopted by her and the aims of her practice, the teacher explained:

> **Teacher from School B:** A book would intimidate them. They only need a few poems so I try to have a good variety of themes in a few poems. They have everything they need there for the exam but it's not too much. They know that what they have done is enough and they don't worry because they can do it. All of the themes that are in the poems we cover are common exam questions so they know that they are prepared for the exam (Junior Cert)… I'm always looking for ways to engage with them and get them to talk about the poetry. We play word games. We also talk about what's in the news and what's on TV. Anything to get them talking and discussing in class. It's important that they are confident to talk in the group. They're good to talk now but some of them can be quiet.

Within this context, the teacher, using one computer in the small room, guided the students through elements of the software that she had selected as suitable. The teacher tended to focus on the visual elements of the software to engage the students and promote discussion. In many respects the resource was being used as an alternative to a *PowerPoint* presentation and the lessons remained largely teacher-centred.

> **Teacher from School B:** It's great that the poem could be read aloud for them and having all of the new words explained to them is useful too… They find the theme difficult. They know what it is but they still find it hard to describe… the help with that is good. 'Base Details' is the hardest one for them because there's so much in it but then they have a really strong question to work with so that is definitely great for them.

Since the teacher did not enable the students to use the software individually, the opportunity to collect the students' completed worksheets was not possible. However, six lessons were observed with these groups in order to try to gauge the level of student interest and engagement. Overall the visual dimension of the software seemed to have a positive effect. The visual elements appeared to stimulate quite a significant level of discussion and the teacher used this opportunity to explore aspects of the poem. The teacher's comments in one of the interviews supported this:

> **Teacher from School B:** I would like to use some kind of technology with them (the class) but there's nothing there for them. As a class they are quite weak I teach the support groups as you know and they're very weak. They need a lot of extra encouragement and support. I don't use a text book as it just doesn't suit them. It was great for them to see what the poet looked like. It made it more real for them.

5.3. School C

School C was an all-girls private voluntary secondary school located within an affluent suburb of a city. In this school, the cooperating teacher described the group of students that used the software as a mixed ability group, although they appeared to have a much higher academic ability than the other participating groups. The school had a strong academic ethos and this was reflected in the nature of extra-curricular activities that the students participated in. For example, this group were involved in debating as an extracurricular activity. Within this school, the resource was uploaded to an online learning environment and students accessed the content via a shared login created by the teacher.

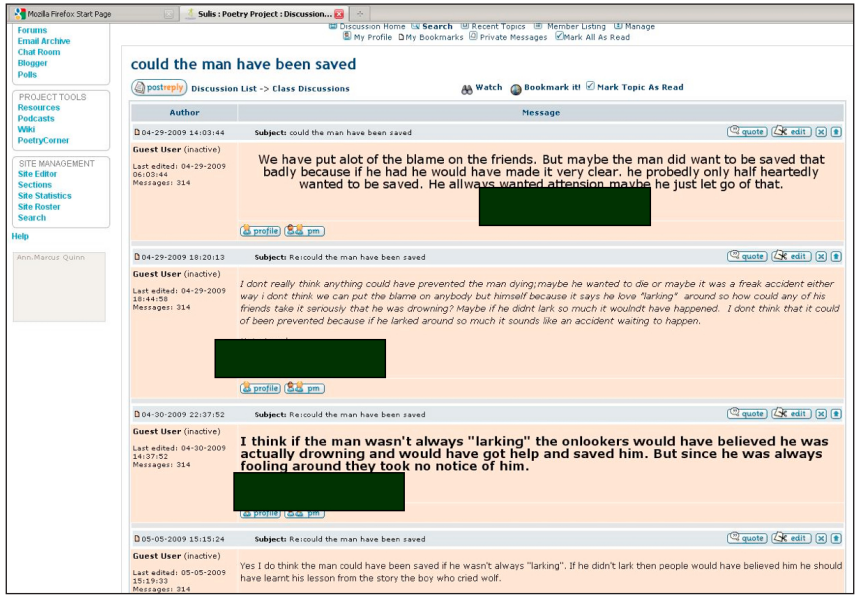
A notable difference observed in this school was the level of autonomy afforded to the students. Students were given a very high level of autonomy as they were allowed to work independently on the tasks both within and outside of school. The level of teacher interest in the initiative was also very high. The teacher created creative writing tasks that complemented the digital resource and the students were also provided with weekly writing tasks in which the software assisted them. Students were encouraged to discuss the content, theme and style of each poem via online asynchronous discussion boards. Although participation in these discussion boards was voluntary and anonymous, many chose to sign their contributions and some initiated separate discussion threads on related issues (see Figure 1).

Overall the level of student engagement was very high and the ability and willingness of the group to take ownership of their individual learning was remarkable. This level of interest was also observed by the teacher that noted:

Teacher from School C: The class enjoyed using the computer. They said that they liked using the computer for a change… No one had any difficulty using it. The student teacher got on fine with them. They'd like to use it again.

Teacher from School C: They like using the VLE. I think that because they knew it was the same one that students at the University use they enjoyed it more and of course they're already used to using social networking sites… that kind of online space. They were good to discuss the questions in much the same way that they would do in class. I was very happy with the whole thing.

Figure 1. Topic posted by student "Could the man have been saved?"



Further evidence of the level of student engagement and satisfaction also surfaced in in student comments at the end of the experience. In response to the question: "What did you like most about using these online resources?" many of

the girls stated that they liked listening to the authentic voice. Where this audio was provided they particularly enjoyed listening to the actual poet reading their work:

> **Student from School C:** It had the poet's voice speaking instead of a teachers which I thought was nice because their accents made it more interesting than the same voice over and over again.
>
> **Student from School C:** In these multimedia resources we are given a background to each poem and poet which I feel gives us a better understanding of the poems.
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> **Student from School C:** My normal surroundings when we study poetry is a classroom with twenty-nine other students and one teacher the good thing about the online poetry is its kind of one on one even though the rest of the class are doing it too you have your own computer and your own thoughts on the poem instead of getting notes which sometimes you don't properly understand.
>
> **Student from School C:** My normal poetry lesson involves a poetry discussion but online we don't have to listen to everyone else and it gets things done a lot faster. Also we got to hear how the poems are meant to be spoken which gives a feel to the tone of the poems. We also got to look at the background of the each poem and poet which helped understand more.
>
> **Student from School C:** I loved using this online learning as it was fun… unlike the boring environment of the classroom, this online resource was a great way to learn poetry by great poets. It gave me a lot of insight into how technology can help learning.

In reflecting on the experience, the cooperating teacher felt the resource was a valuable addition and that it appeared to meet the learning needs of all students regardless of their level of ability;

> **Teacher from School C:** Both the weaker and the stronger students liked using the resources. The weaker ones liked that they got the prompts on the poetic terms and the stronger ones liked that they got the biographical information.

The teacher further commented that greater value could be obtained from the resource if it was integrated more seamlessly into the students' experience over an extended period of time;

> **Teacher from School C:** I would use it again but over a longer period… so maybe I'd use it once a month or once every fortnight and have some more class activity then built into it. We used it quite intensively this time over the few weeks. If we used it over a longer time I think we might get even more out of it.

6. Discussion

This study was largely concerned with students in first and second year of their post-primary education. These students had not yet been divided groups based on what level exam they would take at Junior Certificate (higher or ordinary level English). Initially it was intended to only use this type of mixed ability group. However, due to difficulty in recruiting participants two small groups of eight students in a learner support class were also included. Consequently, this study reports on the use of an OER in three very distinct settings with different outcomes and expectations by teachers and students. The learning object was designed to be used by an individual student working on their own, and on their own PC, thus engaging in a personal learning experience. However, the schools involved in the study could not accommodate this. In many cases there were a number of students sharing computers.

The research revealed considerable differences in how the resource was used across the three schools. As has been highlighted earlier, the digital divide is no longer defined by one's access to the technology but rather the actual use of it.

As was evident from the three schools that participated in this study, the nature of the student activities ranged from lower order passive tasks to more higher order challenging activities which gave the students considerable autonomy. It is noteworthy that the autonomy was given to the students in the more affluent schools (as defined by the socio-economic background of the students attending the schools) and to the classes of the more 'able' students. Therefore the use of such resources, rather that addressing the digital divide, may instead widen the gap as it is debatable as to whether the activities and tasks provided to the students in the more teacher-directed lessons provided any benefit to the learners. Indeed it could be argued that such restrictions caused a level of student frustration and subsequent disengagement with the experience. On the other hand, in the schools where students were encouraged to take ownership of the experience, it appeared to have increased motivation and caused greater engagement in the tasks. In fact the resource seemed to have a catalytic effect, causing spin-off projects and tasks.

It appears that the issue of the digital divide is therefore not ICT related but instead points to a broader issue of the nature of the students' learning experience and how they are perceived by the teacher and school. In some instances, they are given a level of responsibility and autonomy which they use to great effect. This then adds to their learning experience and creates more positive attitudes to school and learning. In others (and unfortunately perhaps the majority) the excessive control over the content and the teacher-directed nature of the experience has the opposite effect, causing greater resentment and disengagement. One could argue that in one setting the students are developing the important information literacy skills outlined by Berthelsen, Halliwell, Peacock, Burke, and Ryan (2000) while in the other, because of the restrictions placed on their opportunities to interrogate and evaluate the material presented, these skills are not provided. Berthelsen et al. (2000) encapsulate this claiming that

> "[w]hile information literacy skills are usually considered in relation to the use of information technology, such technology does not, in itself, provide a means for developing other important skills related to information literacy. Information literacy involves specific behavioural skills (e.g.,

> using technology) but also processes of critical evaluation of information. While information technology provides students with opportunities to gain access to a wide range of information that can be the catalyst for more critical thinking, a critical perspective is unlikely to develop unless opportunities are provided to support students in being able to evaluate information" (p. 2).

Irish schools have overcome the initial barriers that hinder the integration of ICT in schools. They include suitable resources and teacher ICT skills and knowledge but as Ertmer (2005) argues, the greatest challenges have yet to be overcome. The challenge for schools is to now consider how the technology will be used to best effect. Will it be used to support the existing didactic system as a tool to enhance the teacher's presentation or will it be used as a tool to support more independent learning and exploration amongst students? The history of ICT integration to date would point to the former. In looking at schools over the decades Hargreaves (2003) identified a "basic grammar" of schools that appears to survive societal changes and attempted innovations in schools;

> "[b]ehind all the autonomy, attempted innovation and educational expansion, a basic 'grammar' of teaching and learning persisted where most teachers taught as they had for generations, from the front, through lecturing, seatwork and question-and-answer methods, with separate classes of age-like children, evaluated by standard paper-and-pencil methods" (p. 4).

The historical legacy of teacher-centred approaches to lessons and an emphasis on control and examination preparation was also evident in a number of the classes observed in this study. The technology appears to have been selected to serve the 'system's' needs and other aspects were ignored. In this context, in relation to the digital divide and the need to equip students with the important literacies of the future, it could be argued that schools are part of the problem rather than the solution.

> "One thing that has struck me in my work with urban kids is the odd congruence between two very different systems: the system of global

> media that wants young people to be spectators and consumers rather than social actors, and a factory system of schooling that wants young people to be passive and willing vessels for a prescribed set of knowledge and skills" (Goodman, 2003, p. 2).

Before concluding, it is worth briefly examining some of the limitations of the study. This research was small in nature and only encompassed three schools. With this in mind, one must be conscious of the limitations of such as small-scale study and the generalisations drawn from it. However, despite the sample size, the value of this study is that it reveals the vastly different approaches adopted.

Since this study was carried out, new technologies such as rapid authoring tools have become more readily available. However, technologies may change and evolve but, as this study has highlighted, the response from educators will vary significantly. An understanding of this variation in adoption is important for how OERs are developed in the future.

7. Conclusion

In conclusion, as this chapter has highlighted, the digital revolution has brought new opportunities and challenges for schools. It is understandable that schools' reaction to these demands is to expose students to information and communication technologies. However, the mere use of ICT will not address concerns over the digital divide and indeed may cause a greater divide in the long-term. This divide may occur between students that have acquired critical analytical skills in using ICT in a purposeful manner and those that use ICT in a superficial manner.This use is characterised by a focus on the acquisition of basic skills and the recreational use of social media and gaming. It is therefore critical that future use of ICT goes beyond the basic skills-based emphasis that has characterised its use in post primary schools since its introduction. Greater integration across the curriculum also needs to take place to facilitate the acquisition of these higher order skills.

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Published by Research-publishing.net
Dublin, Ireland; Voillans, France
info@research-publishing.net

Internet Research, Theory, and Practice: Perspectives from Ireland
Edited by Cathy Fowley, Claire English, and Sylvie Thouësny

Typeset by Research-publishing.net
Cover design: © Raphaël Savina (raphael@savina.net)

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ISBN13: 978-1-908416-04-9 (Paperback, Print on Demand, Lulu.com)
ISBN13: 978-1-908416-05-6 (Ebook, Kindle Edition, Amazon Media EU S.à r.l.)
ISBN13: 978-1-908416-08-7 (Ebook, PDF file, Open Access, Research-publishing.net)

British Library Cataloguing-in-Publication Data.
A cataloguing record for this book is available from the British Library.

Bibliothèque Nationale de France - Dépôt légal: juin 2013.